

What is claimed is:

1. An antireflection film having a hard coat layer prepared on one side of a transparent substrate directly or through other layers, and further an antireflection layer laminated on a surface of the hard coat layer,

wherein the antireflection layer is formed by a dry cured film obtained from a solution comprising

a siloxane oligomer (A) obtained by condensation polymerization after partial hydrolysis of a hydrolyzable alkoxy silane that contains a tetra alkoxy silane represented by a general formula (1):  $\text{Si}(\text{OR})_4$  (where R represents methyl group or ethyl group) as a principal component

and a compound (B) having a fluoro alkyl structure and a polysiloxane structure obtained by polymerization of a compound having a perfluoro alkyl structure and a hydrolyzable non-fluorinated alkoxy silane.

2. The antireflection film according to Claim 1, wherein the siloxane oligomer (A) is blended in the solution so that a solid content weight ratio of the siloxane oligomer (A) in the antireflection layer is 10 to 80 percent by weight.

3. The antireflection film according to Claim 1, wherein the hard coat layer is formed of an ultraviolet curable resin and has a  $n_d^{20}$  (refractive index at 20°C) which is 1.49 or more.

4. The antireflection film according to Claim 1, wherein a surface of a hard coat layer has uneven form and has optical antiglare property.

5. The antireflection film according to Claim 1, wherein the hard coat layer comprises fine particles.

6. An antireflection layer forming agent comprising

a solution including a siloxane oligomer (A) obtained by condensation polymerization after partial hydrolysis of a hydrolyzable alkoxy silane that contains a tetra alkoxy silane represented by a general formula (1):  $\text{Si}(\text{OR})_4$  (where R represents methyl group or ethyl group) as a principal element

and a compound (B) having a fluoro alkyl structure and a polysiloxane structure obtained by polymerization of a compound having a perfluoro alkyl structure and a hydrolyzable non-fluorinated alkoxy silane.

7. An antireflection layer formed with a dry cured film of the antireflection layer forming agent according to Claim 6.

8. An optical element having an antireflection film according to claim 1 provided on one side or on both sides of the optical element.

9. An optical element having an antireflection film according to claim 2 provided on one side or on both sides of the optical element.

10. An optical element having an antireflection film according to claim 3 provided on one side or on both sides of the optical element.

11. An optical element having an antireflection film according to claim 4 provided on one side or on both sides of the optical element.

12. An optical element having an antireflection film according to claim 5 provided on one side or on both sides of the optical element.

13. A visual display provided with the antireflection film

according to claim 1.

14. A visual display provided with the antireflection film according to claim 2.

15. A visual display provided with the antireflection film according to claim 3.

16. A visual display provided with the antireflection film according to claim 4.

17. A visual display provided with the antireflection film according to claim 5.

18. A visual display provided with the optical element according to Claim 8.

19. A visual display provided with the optical element according to Claim 9.

20. A visual display provided with the optical element according to Claim 10.

21. A visual display provided with the optical element according to Claim 11.

22. A visual display provided with the optical element according to Claim 12.

23. The antireflection film according to Claim 1, wherein the compound having a perfluoro alkyl structure is a non-fluorinated alkoxy silane represented by the general formula (1):  $\text{Si}(\text{OR})_4$ , where R represents methyl group or ethyl group.

24. The antireflection film according to Claim 1, wherein the hydrolyzable alkoxy silane is present in a ratio of about 1 to 100 mols to

one mol of the compound having a perfluoro alkyl structure.

25. The antireflection film according to Claim 23, wherein the hydrolyzable alkoxy silane is present in a ratio of about 1 to 100 mols to one mol of the compound having a perfluoro alkyl structure.

26. The antireflection film according to Claim 24, wherein the hydrolyzable alkoxy silane is present in a ratio of about 2 to 100 mols to one mol of the compound having a perfluoro alkyl structure.

27. The antireflection film according to Claim 25, wherein the hydrolyzable alkoxy silane is present in a ratio of about 2 to 100 mols to one mol of the compound having a perfluoro alkyl structure.

28. A visual display provided with the antireflection film according to Claim 23.